

Claims

1. A method of comparing at least two sets of multimedia data using shape information so as to provide a dissimilarity measure between the sets, a first set forming a reference set and the second set being compared relative to the first set, the method comprising steps of;
 - a) providing a set of contour points for each set of multimedia data,
 - b) associating the contour points of the first set with contour points of the second set so as to define associated contour points,
 - c) calculating distances between said associated contour points, andwherein the distances between said associated contour points are used to determine a dissimilarity measure between said sets of multimedia data, thereby providing an indicator of the degree of similarity between the sets.
2. The method of Claim 1, wherein the set of contour points for each set of multimedia data is obtained by tracing the boundary of each set of multimedia data.
3. The method of Claim 1 or 2 wherein the sets of contour points are down-sampled to yield an equal number of approximately equally spaced apart contour points in each set.
4. The method of any preceding claim wherein the sets of contour points are translation and scale-size normalised prior to association with one another.
5. The method of any preceding claim further comprising the step of establishing starting points for each set of contour points, the starting points being established by defining all contour points for each set whose distances from a calculated centroid point of their respective contour are greater than a user-defined first percentage P1 of the most distant contour point from their respective centroid.

6. The method of Claim 5 wherein the method comprises the step of enabling the user to input the first percentage P1.
7. The method of Claim 4 or 5 wherein starting points are established in a
contiguous manner.
8. The method of Claim 7 wherein contiguous starting points are split into groups which contain less than a user-defined second percentage P2 of the total number of contour points.
9. The method of Claim 8 wherein the method comprises the step of enabling the user to input the second percentage P2.
10. The method of Claim 8 or 9 wherein each group of starting points is represented by the starting point which is most distant from the centroid.
11. The method of any of Claims 5 to 10 wherein a reference starting point is taken as the most distant starting point on the set of contour points with the largest number of starting points, or the largest initial area, and for each starting point on the set to be compared, the set to be compared is rotated to align its starting point with the reference starting point.
12. The method of any preceding claim wherein the associated contour points are associated with one another by providing a control point for each of the sets of contour points, and subsequently moving the control points sequentially along the contour of each set, and wherein the movement of the control points about the contour is used to associate contour points from each set with one another.
13. The method of Claim 12 wherein the movement of the control points for each set is initiated at aligned starting points of each set.

14. The method of Claim 12 or 13 wherein at each step of movement of the control points about the contour, the distance between the two control points, the distance between the control point on the first set and the next contour point on the second set, and the distance between the control point on the second set and the next contour point on the first set is calculated, and the contour points with the smallest of these calculated distances are associated with each other.

15. The method of any of Claims 12 to 14 wherein the contour points are assigned until the control points have moved about all of the contour points.

16. The method of any preceding claim wherein the dissimilarity measure is determined by effecting a measure of a scale-size normalised circumference of each set, determining the minimum of said circumferences, and further determining the average and the standard deviation of the distance between associated contour points.

17. The method of Claim 16 wherein the dissimilarity measure is provided by the equation:

$$D(A,B) = \frac{c}{cir_{\min}^2} \cdot |\overline{D}| \cdot |V|$$

where:

- $D(A,B)$ is the dissimilarity degree between set A and set B
- c denotes a user-defined constant which rescales values of the dissimilarity degree to a convenient range of values,
- cir_{\min} is the minimum circumference
- $|\overline{D}|$ is the average distance between associated contour points, and
- $|V|$ is the standard deviation of the distance between associated contour points.

18. The method of any preceding claim wherein a plurality of dissimilarity measures are calculated, each dissimilarity measure being associated with a specific alignment of the sets being compared, and wherein a final dissimilarity measure

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providing an overall indication of a level of equivalence between the sets is given as the lowest of all the calculated dissimilarity measures.

19. A method substantially as hereinbefore described with reference to one or more
5 of the accompanying drawings.

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